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**Infant
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Editorial

Putting the ‘motor’ back into development: The legacy of Esther Thelen (1941–2004)

On December 29th 2004, Esther Stillman Thelen died of cancer at a hospital in Bloomington, Indiana. In a comparatively short career, spanning only 25 years, she changed the face of developmental psychology. She put the marginalized field of infants’ motor development back on the scientific map as an important topic of study both in its own right and as a window into other, less accessible domains of development. Moreover, she introduced dynamic systems approaches into developmental psychology, working relentlessly towards an encompassing dynamic theory for the development of action, perception, and cognition.

An ethologist by training, Esther started her career by carefully documenting repetitive movement stereotypies first in grooming wasps (masters degree, 1973), later in developing infants (doctoral degree, 1977). This early work resulted in a number of well-received publications and the beginning of what would be continuous funding by NSF and NIH. In the early 1980s, she challenged the then-prevailing view on motor development as being determined by neural maturation, settling the resulting argument in her favour. In one of the key papers, ‘The relationship between physical growth and a newborn reflex’ published in this journal, Esther and her co-workers illustrate instead that the complex interplay between infants’ bodies, their environment, and earlier experiences determine the course of developmental changes. No single factor has priority, a theme that would resurface throughout her work. After many decades at the periphery of scientific inquiry, interest in motor development was legitimate again.

Esther’s career sky-rocketed with a string of ingenious cross-sectional and heroic longitudinal studies. The development of infants’ leg movements as a research paradigm dominated in the 1980s, with careful tracking of infants’ kicking, stepping, and walking patterns. In the 1990s, she extended her research program from cyclic leg movements towards perceptually guided, goal-directed arm movements in reaching and grasping. Esther’s most recent work was directed towards embodied cognition, showing how the complex interactions between looking, remembering, and acting shape infants’ perseverative errors in the A-not-B search task.

Esther’s profound influence on our understanding of developmental processes can hardly be overestimated. Always combining theoretical endeavours with experimental data and precise models, she illustrated how to apply Dynamic Systems Approaches to developmental research, which questions to ask, and how to employ its methods in the pursuit of answers. She incorporated Gerald Edelman’s Theory of Neuronal Group Selection in her work to account for the infant’s developing brain. And most

recently, she worked with colleagues on the expansion of Dynamic Field Theory to formally capture the multi-causal nature of development. Esther was equally invested in real-life applications of science, most notably the Feldenkrais method of movement education. After completion of the 4-year training program she became a licensed practitioner, intending to open a small practice for infants with movement problems.

Esther's impact on the field is reflected in three books, an SRCD monograph, and over 120 scientific articles and book chapters. She gave countless invited lectures and colloquia all over the world, always finding time to squeeze in some of life's other essentials like shopping. She served on the editorial boards of 15 scientific journals, she was elected president of the International Society on Infant Studies in 1996, and current president of the Society for Research in Child Development. Judging from the vibrant, healthy state of current research on motor development and its significance for other domains of development, Esther's influence and contributions to scientific work and academic life will be measurable beyond these outputs for many years to come.

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